Environmental Protection

April 18, 2019

Summary of Environmental Benefits - Tank vs Tunnel Program Comparison

		Tanks	Tunnel	Notes, Assumptions & Added Benefits / Opportunities
Cost & Asset Life	Total Cost	$1.2 B	$1.2 B	Estimated for tank equivalent first phase of tunnel program.
	Cost per Gallon CSO Reduced	$6.59	$5.97	Estimated cost per gallon CSO reduced to Gowanus Canal for tank equivalent (16 MG) tunnel concept.
	Asset Life	50 years	150 years	
	Net Present Value	$2.71 B	$2.73 B	Life-cycle costs in 2029 dollars, assumes mechanical equipment replaced every 25 years, electrical and significant structural rehab every 50 years.
Reduction of Ongoing Releases	Storage Volume	12 MG	16 MG +	Tunnel capacity can increase with future phases; sends message to the community/stakeholders that we are forward thinking and planning for future generations.
	Annual Average Overflows to Canal	41 MG	22 MG	Typical year volumes for 12 MG tanks and 16 MG tunnel at RH-034, OH-007. Additional reduction could be achieved from other outfalls with future tunnel expansion.
	Overflow Events / Year OH-007	4	0	Based on 2008 typical year data used for design.
	Overflow Events / Year RH-034	6	4	Based on 2008 typical year data used for design. Opportunity to refine feasability of further reduction in tunnel facility planning.
	Overflow Volume / Year OH-007	10 MG	0 MG	Annual average.
	Overflow Volume / Year RH-034	31 MG	22 MG	Annual average.
	Solids Removal RH-034	85%	93%	Flow through treatment assumed for tanks will be reduced when sea level rise closes tide gates.
	Solids Removal OH-007	99%	100%	Flow through treatment assumed for tanks will be reduced when sea level rise closes tide gates.
Work Practices	Total Construction Duration	7 years	6 years	Estimated based on current schedules.
	Duration of Trucking	51 months	29 months	Less disruption to the community associated with soil management, hauling, and disposal.
	Truck Trips	24,225	17,566	Less disruption to the community associated with soil management, hauling, and disposal.
	Volume of Soil Removed	314,920 CY	228,356 CY	

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Critical Infrastructure Needs & Community Benefits	Sea Level Rise Resiliency	×	✓	Tank flow-through capability diminished with sea level rise. Tunnel can be upsized to provide outlet for design storm unaffected by sea level rise.
	Scalability	×	✓	Tunnel provides opportunity to increase capacity with future phases; tanks do not.
	Aging Infrastructure	×	✓	Tunnel concept provides opportunity to offset or defer the need for complete or partial reconstruction of sewers in need of repair or replacement.
	Sewer Backups	×	✓	Tunnel provides drainage outlet for future sewer improvements.
	Flooding, Surcharge	×	✓	Tunnel provides drainage outlet for future sewer improvements.
	Population Growth	×	✓	Additional capacity for CSO storage and quality of life improvements.
	Carroll Gardens (Bond Lorraine) Flooding	×	✓	Limited conventional alternatives to address challenged sewer serving Carroll Gardens.
	Open Space	✓	✓	Increased flexibility for land use with tunnel concept.